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(54) **GUARD STRUCTURE FOR VEHICLE SEAT LOCK**

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**B62J 1/14** (2006.01)  
**E05B 65/52** (2006.01)  
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**B65D 55/02** (2006.01)  
**B62H 5/00** (2006.01)

(52) **U.S. Cl.** ..... **296/63; 70/166; 70/258;**  
**70/417; 292/150; 296/37.1**

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70/162, 163, 166, 167, 168, 169, 233, 256,  
70/258, 261, 416, 417, 418; 248/551, 553;  
292/137, 141, 143, 146, 150, 161  
See application file for complete search history.

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(57) **ABSTRACT**

A guard structure for a vehicle seat lock includes a cable **54** operatively connecting between a seat locking mechanism (**49**) for a vehicle seat and a key device (**51**) adapted to be actuated by a key. The guard structure also includes a guard body (**81**) for blocking an access from outside of a vehicle body to the cable (**54**).

**12 Claims, 11 Drawing Sheets**

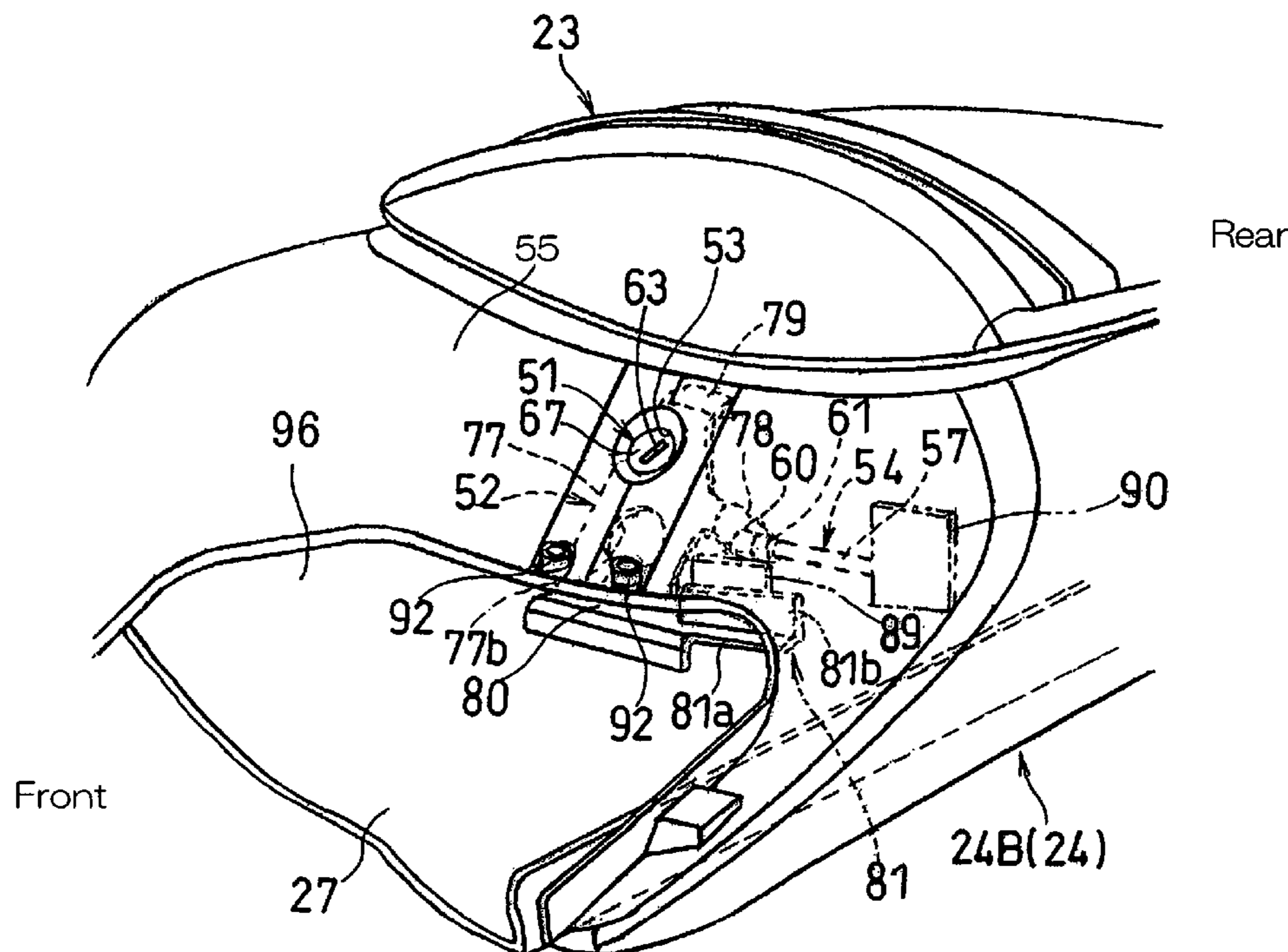


Fig. 1

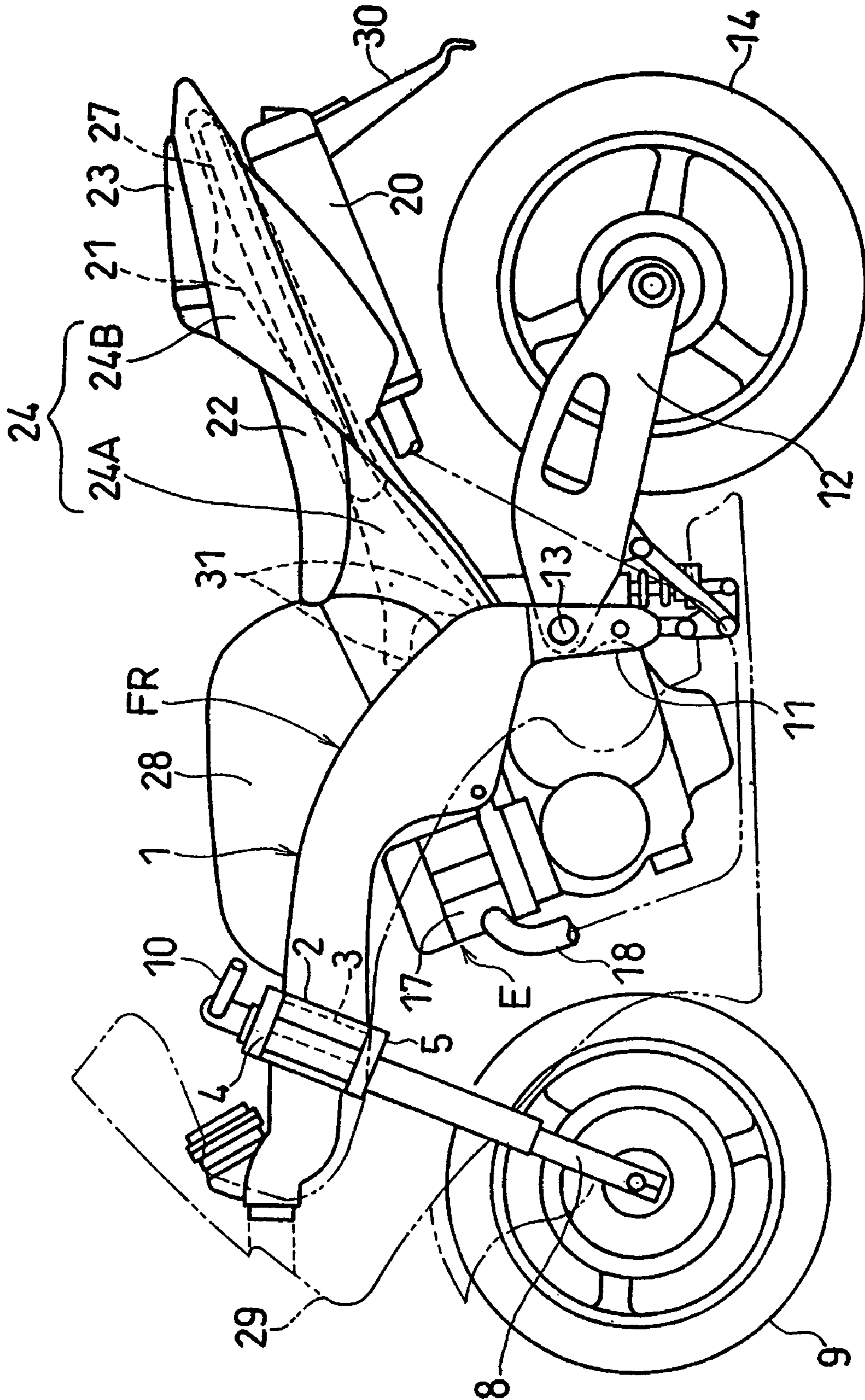


Fig. 2

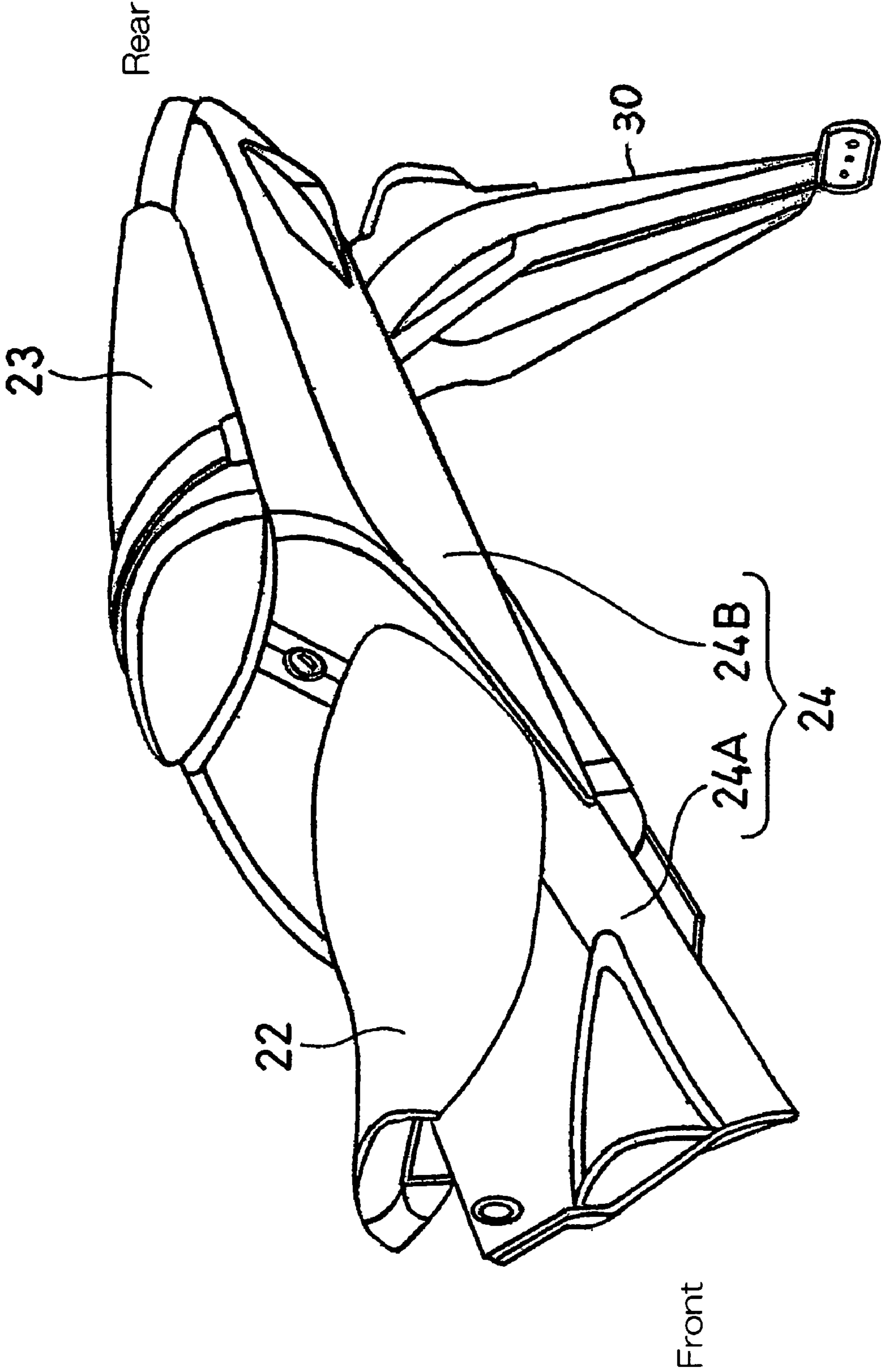


Fig. 3

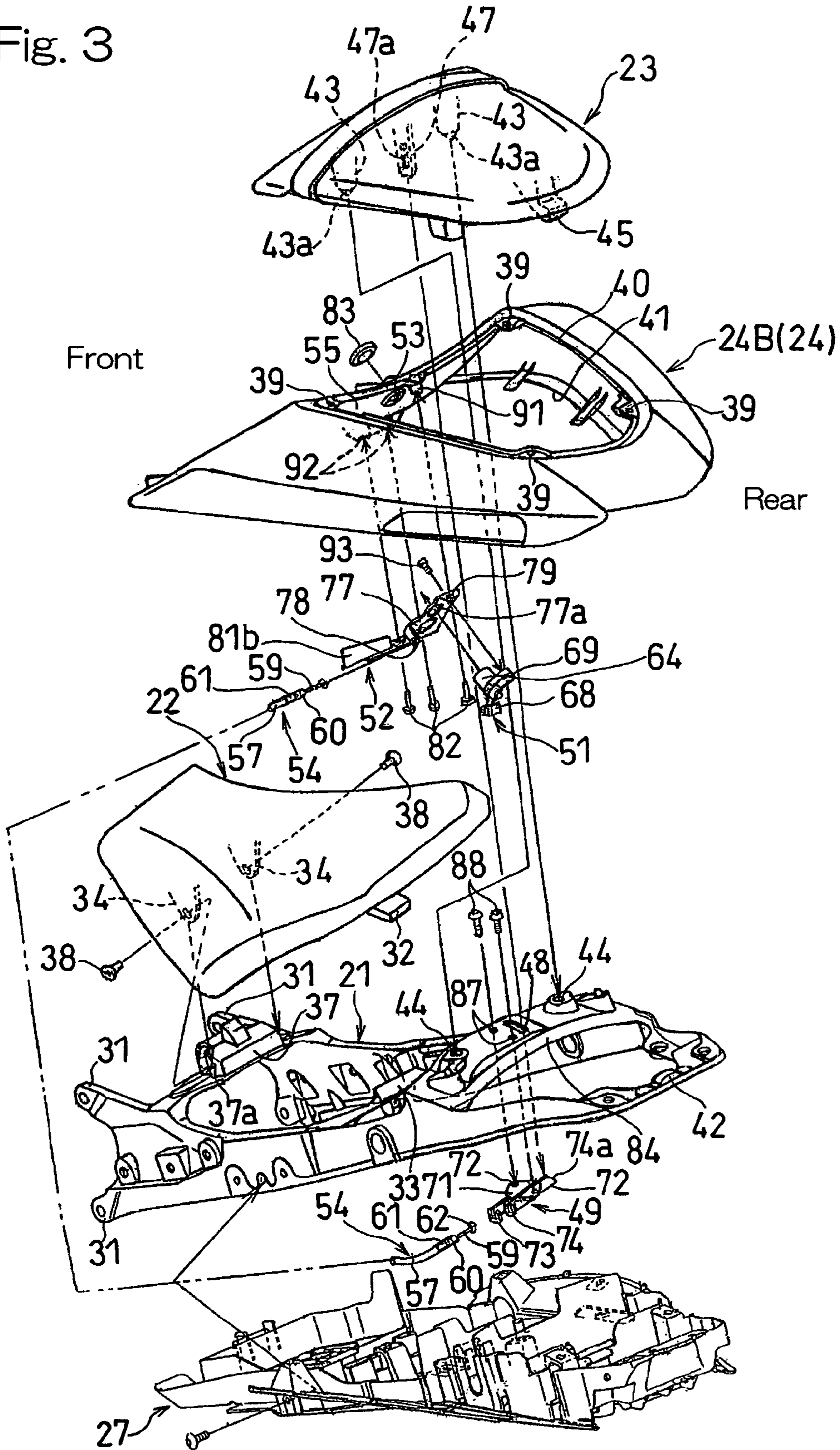


Fig. 4

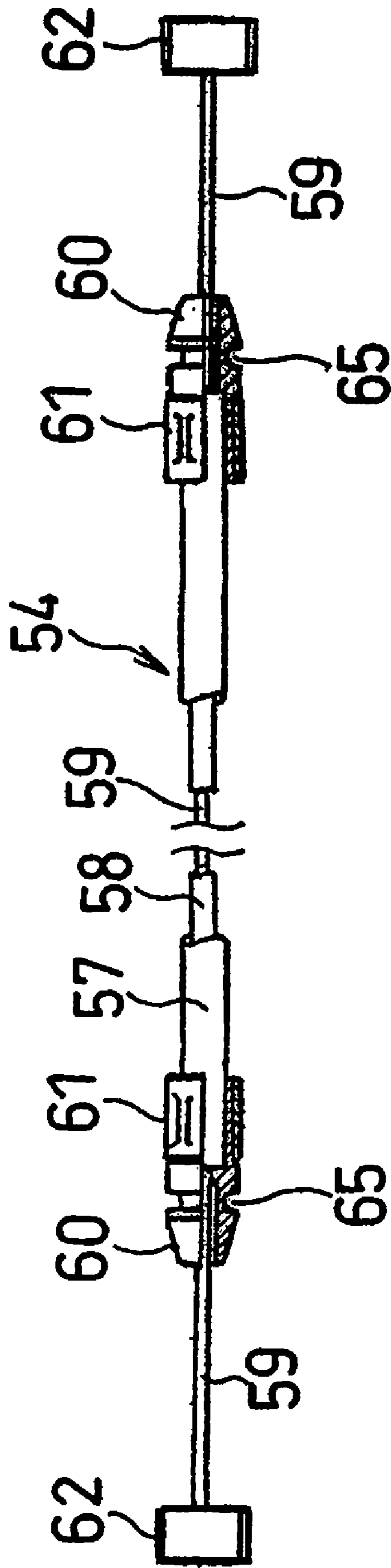


Fig. 5A

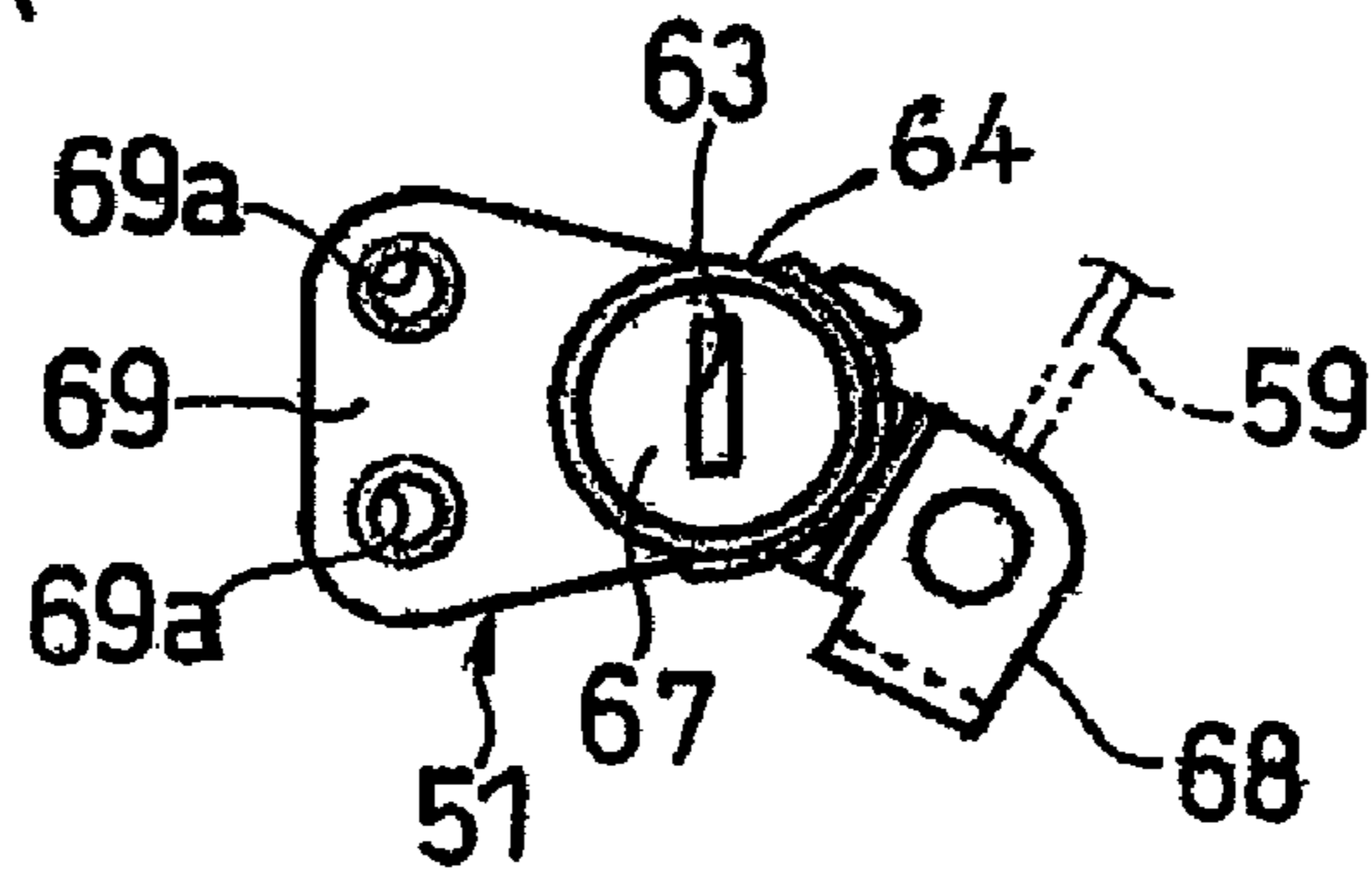


Fig. 5B

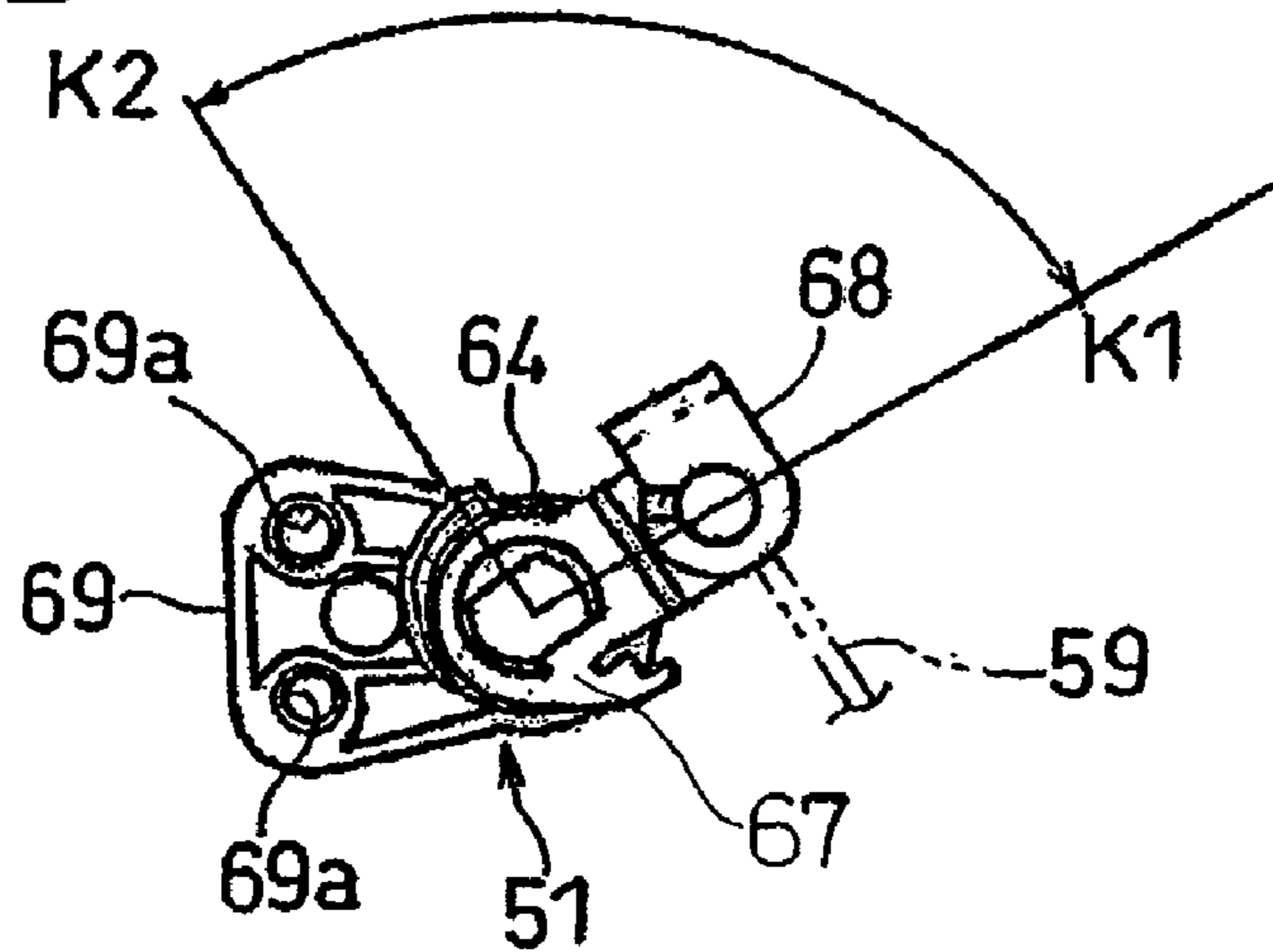


Fig. 5C

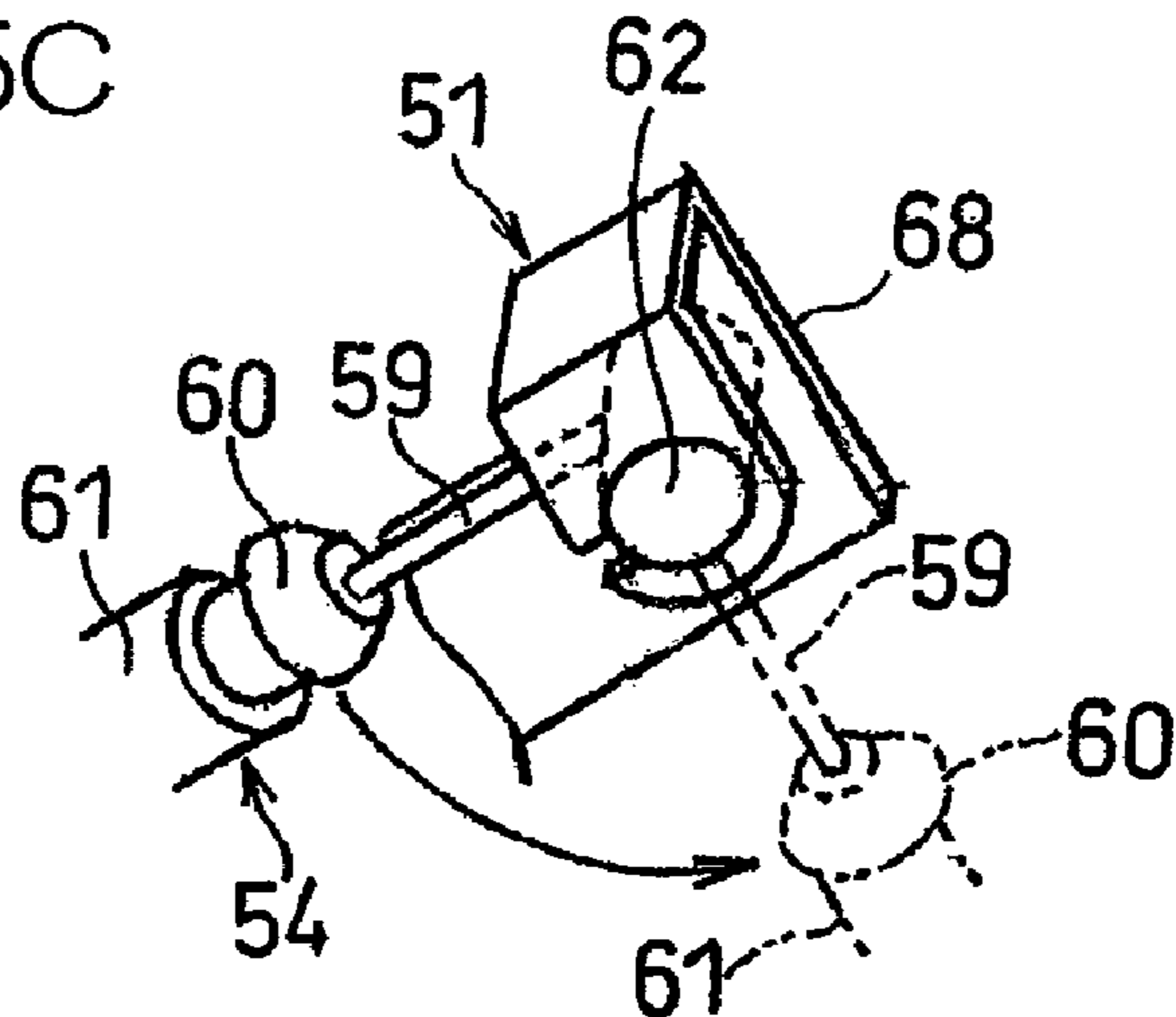


Fig. 6A

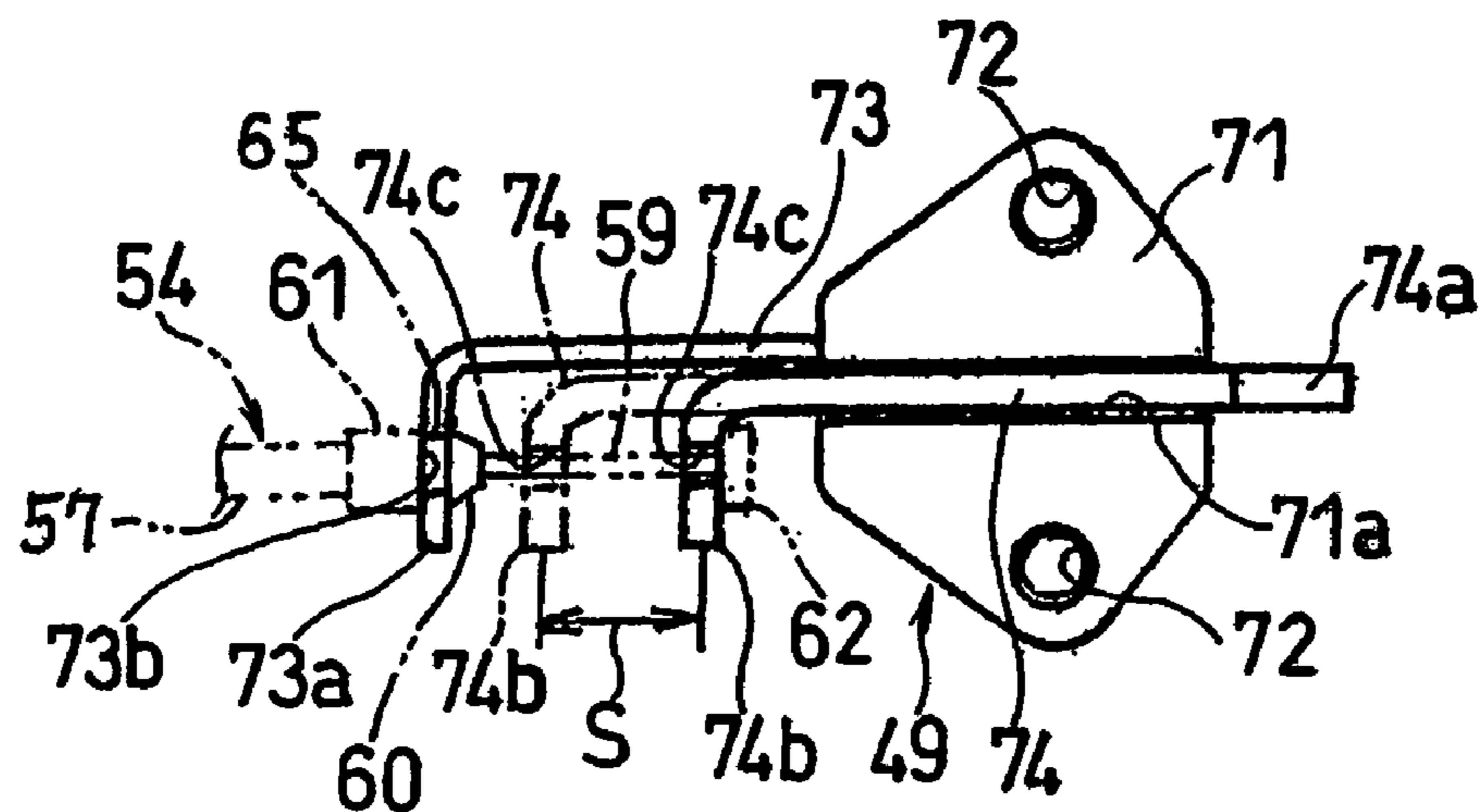


Fig. 6B

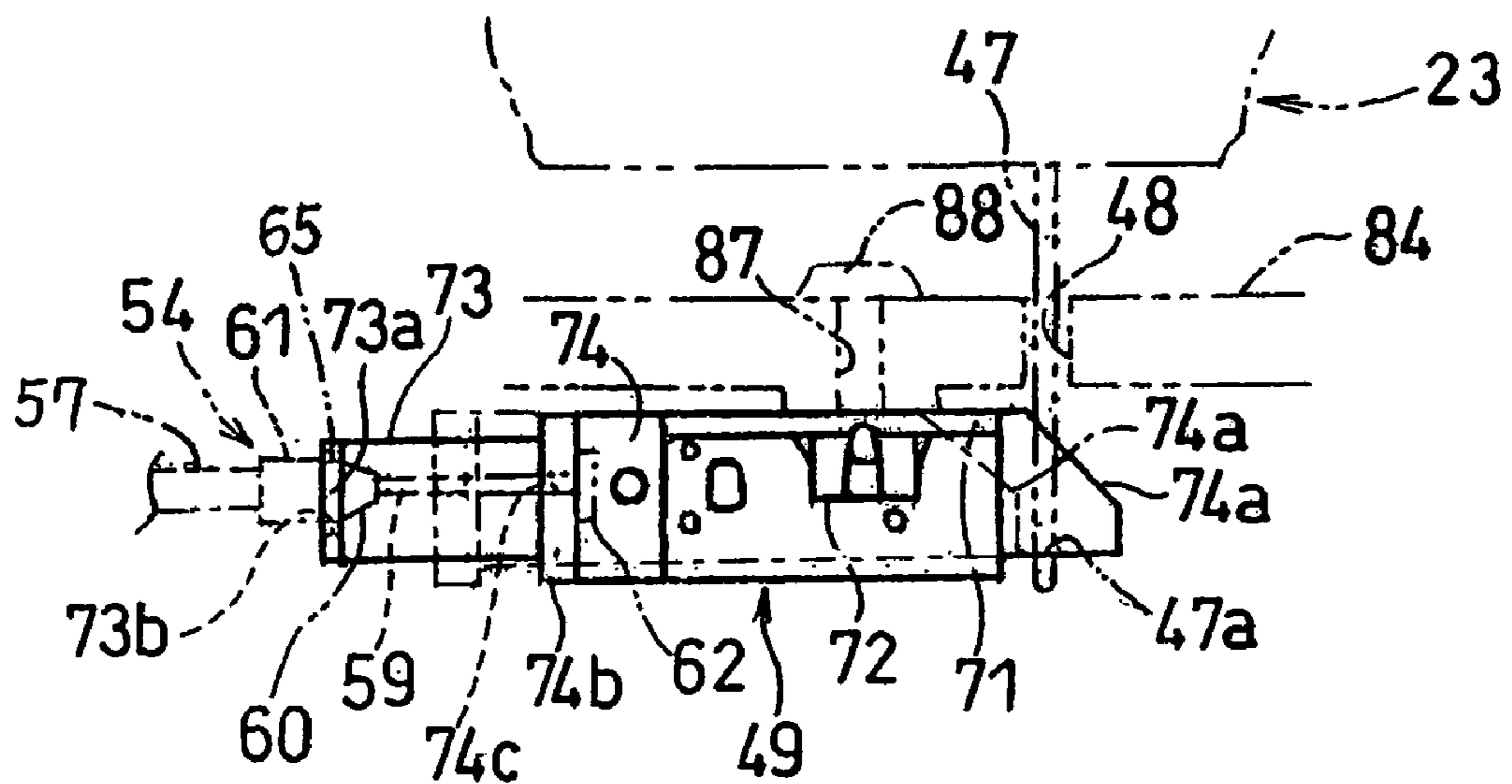


Fig. 7

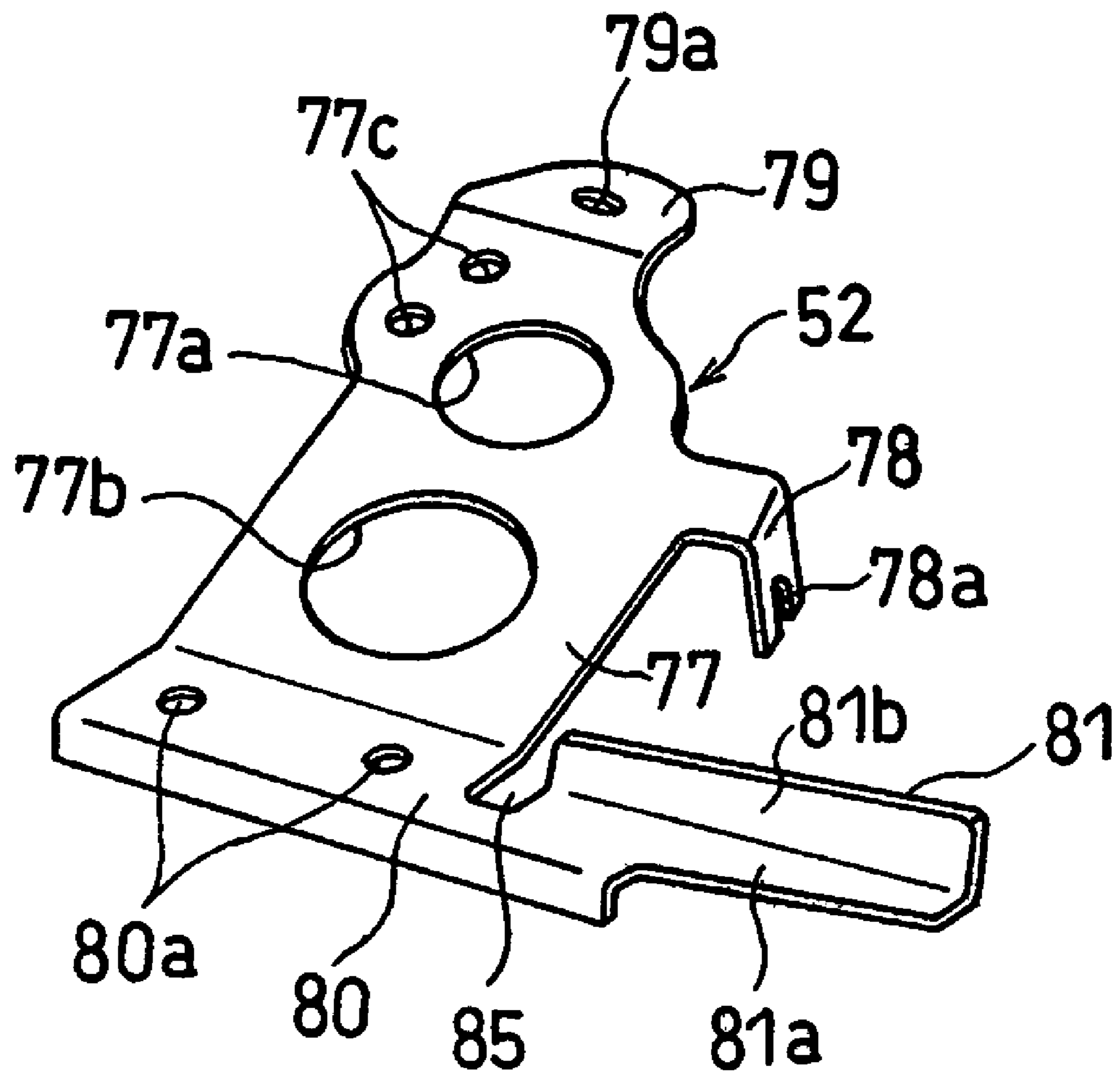




Fig. 8

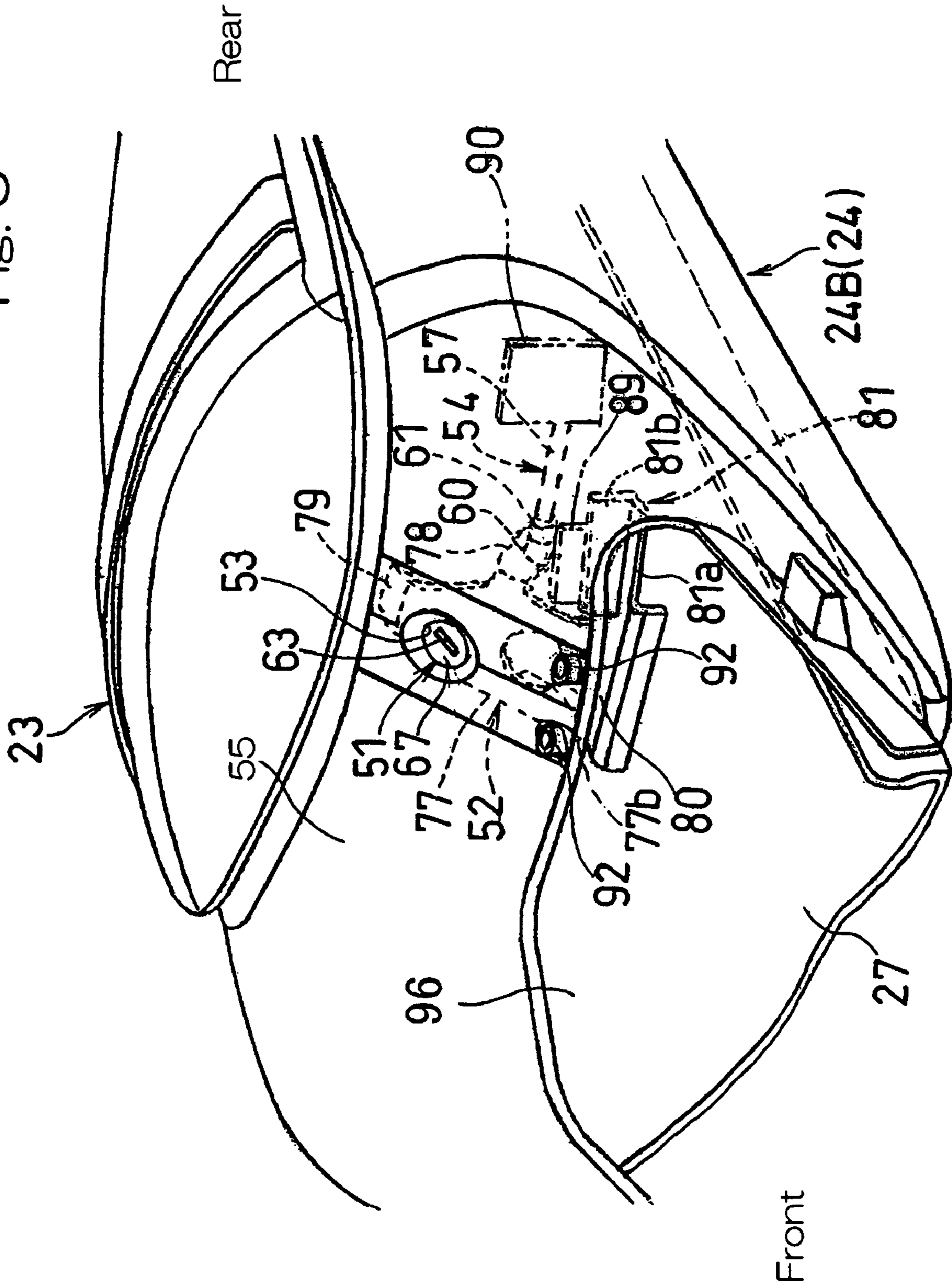


Fig. 9

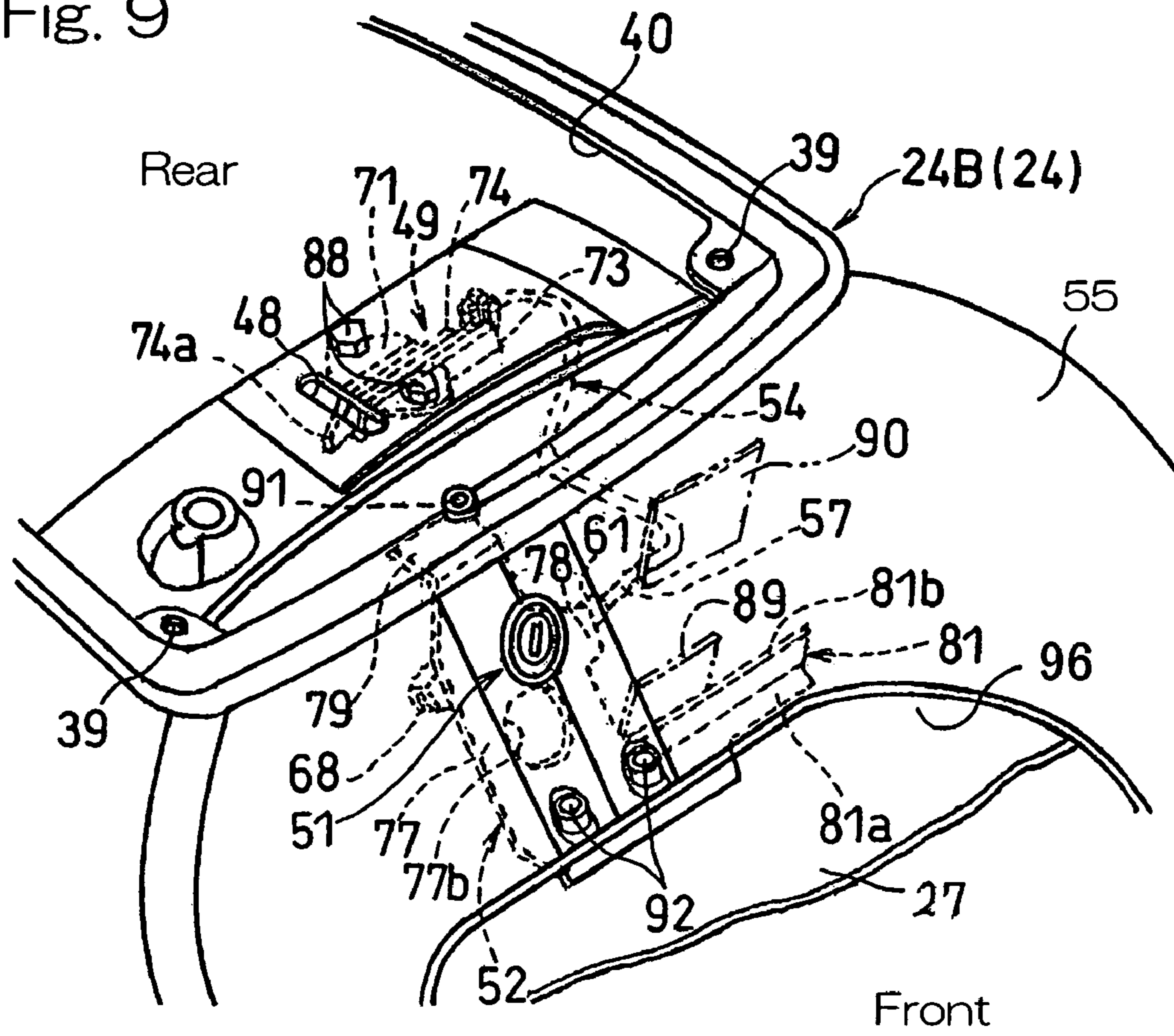
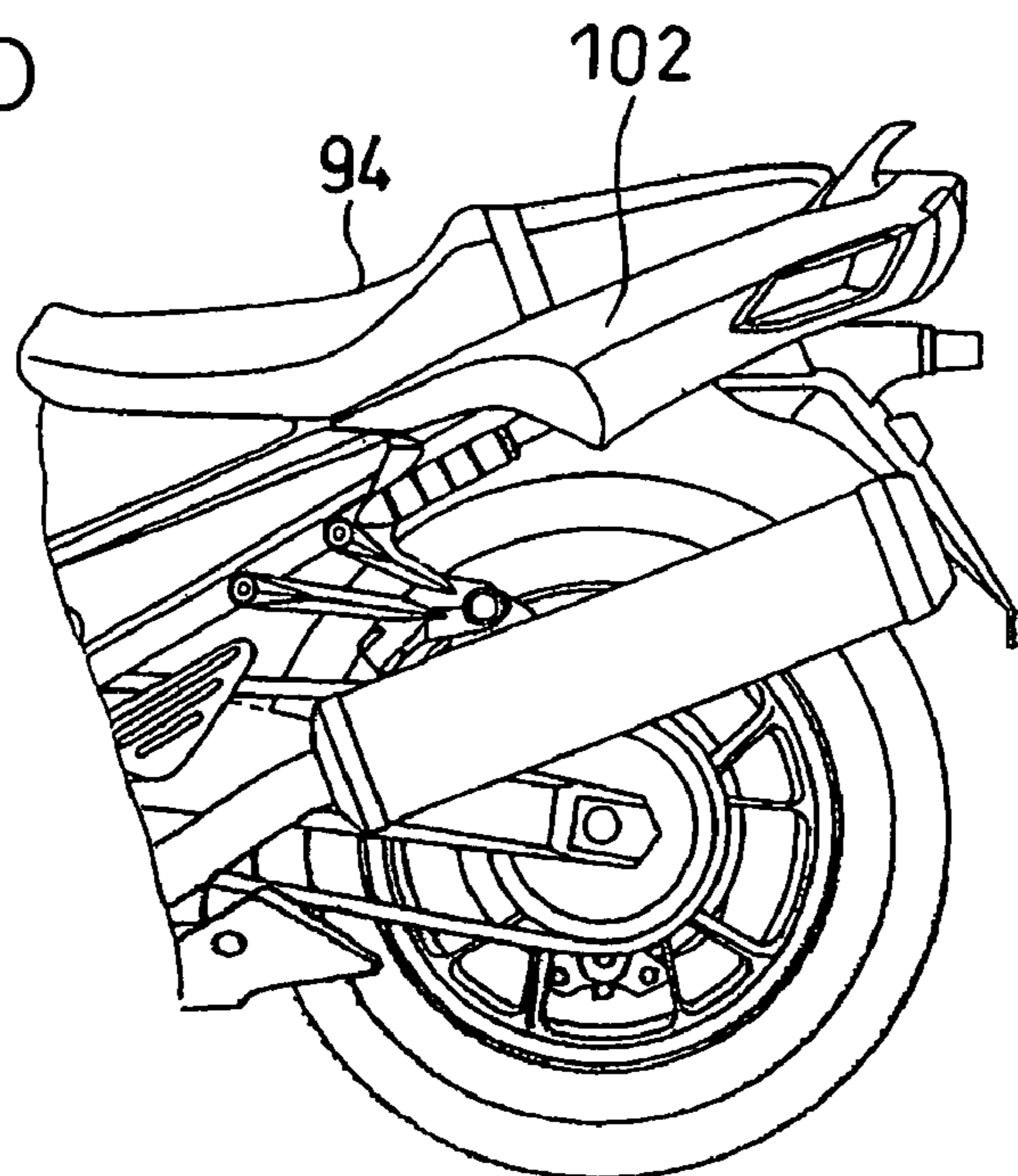


Fig. 10



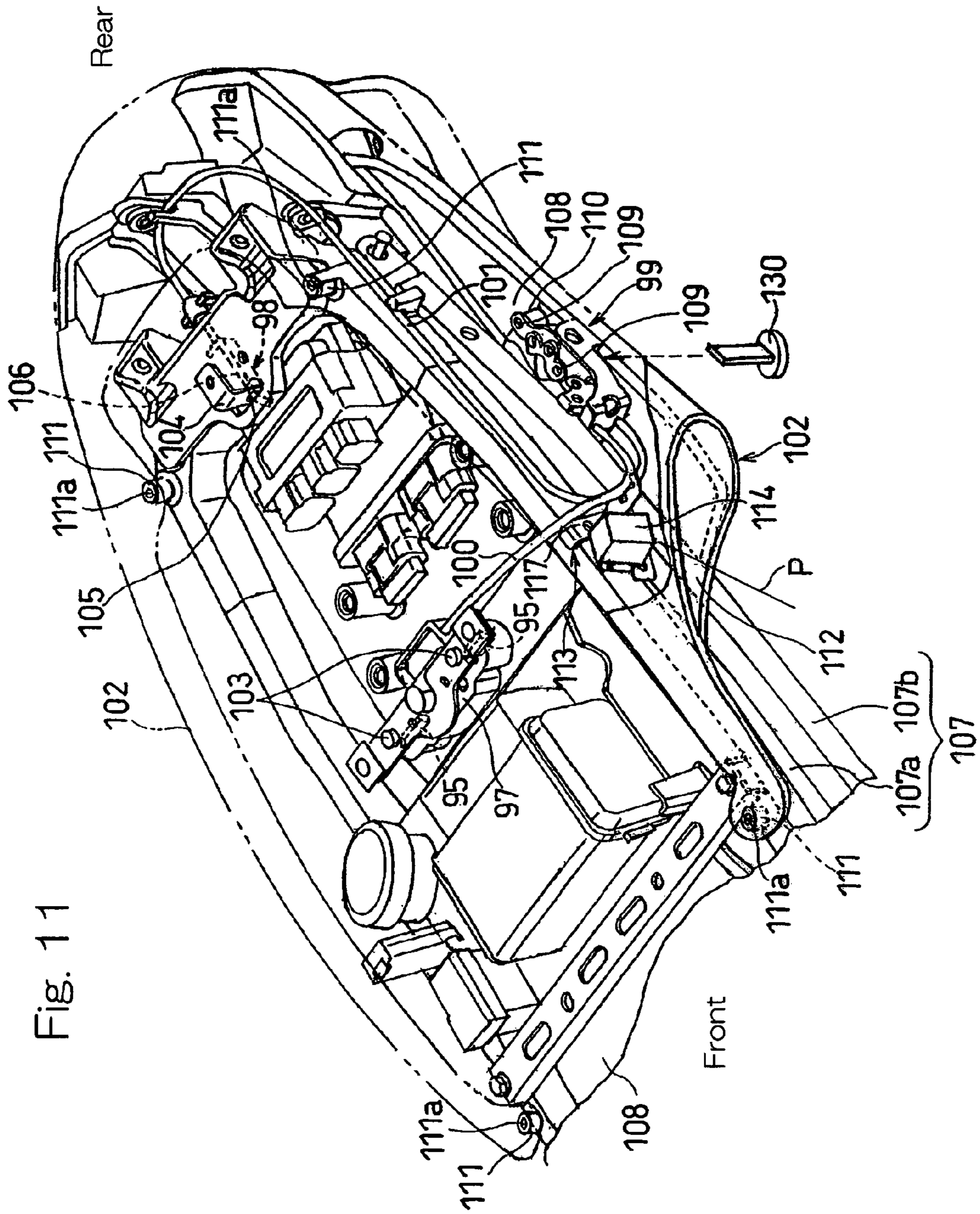
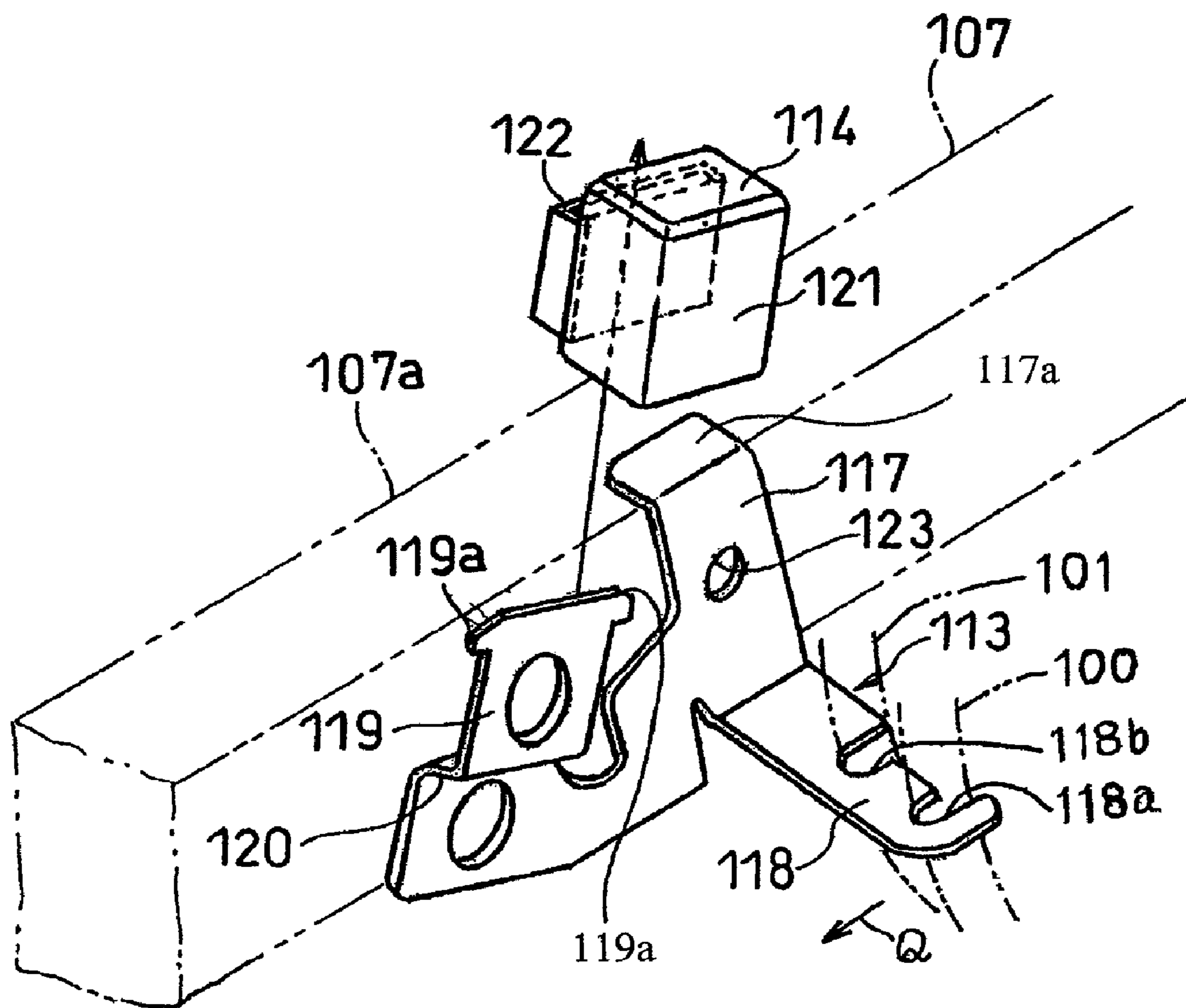


Fig. 11

Fig. 12



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## GUARD STRUCTURE FOR VEHICLE SEAT LOCK

### BACKGROUND OF THE INVENTION

#### 1. Field of the Invention

The present invention relates to a guard structure employed in a vehicle seat lock for preventing a cable, used to connect between a seat locking mechanism and a key device adapted to be actuated by a key, from being forcibly operated from outside by the use of a tool.

#### 2. Description of the Prior Art

In most motorcycles, a utility compartment and/or an electronic control appliance are disposed beneath a seat assembly and, therefore, the seat assembly is removably mounted on a vehicle body in order to enable access to the utility compartment and/or the electronic control appliance. In order to prevent the seat assembly from being removed by an unauthorized person having no key, the seat assembly is mounted on the vehicle body through a seat locking mechanism. Upon turn of a key inserted into a key device, the seat locking mechanism can be unlocked through a cable. See, for example, the Japanese Laid-open Patent Publication No. 2004 -11257, published Jan. 15, 2003.

However, the conventional seat locking mechanism has a problem that if a person having no key inserts an elongated flexible tool such as a wire through a gap present around the key device or the cable to hitch the cable, the seat locking mechanism can be unlocked.

### SUMMARY OF THE INVENTION

The present invention has been made to substantially eliminate the foregoing problems and inconveniences inherent in the conventional vehicle seat lock and is intended to provide a guard structure for the vehicle seat lock, which is effective to prevent a seat locking mechanism from being unlocked without turn of a key.

In order to accomplish the foregoing object of the present invention, there is provided a guard structure for a vehicle seat lock, which includes a cable operatively connecting between a seat locking mechanism for a vehicle seat and a key device adapted to be actuated by a key. The guard structure further includes a guard body for blocking an access from outside of a vehicle body to the cable. It is to be noted that the term "vehicle body" used hereinabove and hereinafter is intended to encompass a motor vehicle structure including a vehicle frame structure and a mechanical skeleton of the vehicle fixed on the vehicle frame such as a fairing, side covers and a tail cover.

According to the present invention, even if an attempt is made to insert a tool such as a wire through a gap present around the key device or the cable so as to make access to the cable, this tool can be barred by the guard body and is therefore blocked from reaching the cable. Because of this, it is possible to prevent the seat locking mechanism from being unexpectedly unlocked by an unauthorized person having no key.

Preferably, the guard structure of the present invention also includes a support bracket, through which the key device is mounted on the vehicle body, and wherein the guard body is provided in the support bracket. According to this structural feature, the guard body can effectively block an access from outside to the cable since an area around the support bracket, where the cable is coupled with the key device but access from outside can be made easily, can be closed by the guard body. Also, no variation occur in the mounting position of the

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guard body, compared with the case in which the support bracket and the guard body are arranged separately, and, accordingly, not only can the access to the cable 54 be effectively blocked, but also the number of component parts used can be reduced if the guard body is formed integrally with the support bracket.

In one preferred embodiment of the present invention, the key device may be fitted to a tail cover positioned proximate to the vehicle seat. According to this structural feature, if the key device is fitted to the tail cover, the spacing between the key device and the seat locking mechanism can be reduced and the cable can have a correspondingly reduced length, making it possible to allow the guard body to facilitate blocking of the access from outside to the cable.

Where the key device is fitted to the tail cover, the guard body is preferably provided in a rear fender positioned above a rear wheel. According to this structural feature, if the guard body is provided in the rear fender, which is a relatively large component forming the vehicle body, the guard body can have so large a size as to effectively block the access from outside to the cable.

In another preferred embodiment of the present invention, the guard body may be supported by a rear frame. According to this structural feature, in the case of, for example, a motor vehicle of a type, in which the key device is disposed at a location proximate to the rear frame, even if an attempt is made to insert the tool, for example, a wire through a gap present around the key device or the cable so as to make access to the cable, this tool can be barred by the guard body and is therefore blocked from reaching the cable.

In a further preferred embodiment of the present invention, the guard body may be one of vehicle mounted component parts, in which case the guard body is supported by the rear frame through a bracket. The term "vehicle mounted component parts" is intended to mean component parts mounted on the vehicle body which include, for example, electronic control component parts, accessories, clamps, indicators or any other ancillary part. According to this structural feature, since intrusion of the tool such as a wire can be blocked merely by changing the position of the vehicle mounted component part, it is possible to effectively prevent the seat locking mechanism from being unlocked with an inexpensive simplified structure.

### BRIEF DESCRIPTION OF THE DRAWINGS

In any event, the present invention will become more clearly understood from the following description of preferred embodiments thereof, when taken in conjunction with the accompanying drawings. However, the embodiments and the drawings are given only for the purpose of illustration and explanation, and are not to be taken as limiting the scope of the present invention in any way whatsoever, which scope is to be determined by the appended claims. In the accompanying drawings, like reference numerals are used to denote like parts throughout the several views, and:

FIG. 1 is a schematic side view of a motorcycle equipped with a seat lock guard structure according to a first preferred embodiment of the present invention;

FIG. 2 is a perspective view of a seat mounting area of the motorcycle as viewed from front;

FIG. 3 is an exploded perspective view of the seat mounting area of FIG. 2 as viewed from rear;

FIG. 4 is a fragmentary side view of a cable employed in the seat lock;

FIG. 5A is a front elevational view of a key device employed in the seat lock;

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FIG. 5B is a rear elevational view of the key device;

FIG. 5C is a perspective view of the key device, showing the manner of connecting of the cable to the seat lock;

FIG. 6A is a plan view of a seat locking mechanism employed in the seat lock;

FIG. 6B is a front elevational view of the seat locking mechanism;

FIG. 7 is a perspective view of a support bracket for the key device;

FIG. 8 is a fragmentary perspective view of a rear portion of the motorcycle with a motorcycle rider's seat removed, as viewed from front right side;

FIG. 9 is a fragmentary perspective view of a rear portion of the motorcycle with the rider's seat and a fellow passenger's seat removed, as viewed from front left side;

FIG. 10 is a fragmentary side view of a rear portion of the motorcycle equipped with the seat lock guard structure according to a second preferred embodiment of the present invention;

FIG. 11 is a perspective view of the seat lock guard structure employed in the motorcycle shown in FIG. 10; and

FIG. 12 is an exploded perspective view showing a motorcycle mounted component and a bracket, both used in the seat lock guard structure.

#### DETAILED DESCRIPTION OF THE EMBODIMENTS

Hereinafter, the present invention will be described in detail in connection with preferred embodiments thereof with reference to the accompanying drawings.

Referring to FIG. 1, showing a side view of a motorcycle equipped with a seat lock guard structure according to a first preferred embodiment of the present invention, the motorcycle shown therein includes a main frame 1 forming a front half of a motorcycle frame structure FR, a head tube 2 fitted to a front portion of the main frame 1, a steering shaft 3 rotatably inserted into the head tube 2, upper and lower brackets 4 and 5 supported to the head tube 2 through the steering shaft 3, front fork members 8 supported by the upper and lower brackets 4 and 5, and a front wheel 9 supported rotatably by respective lower ends of the front fork members 8. A handlebar 10 is mounted on the upper bracket 4 at respective upper ends of the front fork members 8.

Swingarm brackets 11 are provided at a rear lower portion of the main frame 1, and a swingarm 12 is pivotally supported by the swingarm brackets 11 through a pivot shaft 13 for vertical swing movement. A rear drive wheel 14 is rotatably carried by the swingarm 12. A multi-cylinder type engine E is supported at a position below an intermediate portion of the main frame 1. Also, a plurality of exhaust pipes 18 are fluidly connected with a cylinder head 17 of the engine E and are then fluidly connected with a muffler 20 disposed on each side of a rear portion of the motorcycle frame structure FR.

A rear frame 21 (seat rail assembly) rigidly coupled with a rear portion of the main frame 1 forms a rear half of the motorcycle frame structure FR. A rider's seat 22 and a fellow passenger's seat 23 are mounted on the rear frame 21. The rear frame 21 includes a rear wheel fender 27 positioned above the rear drive wheel 14. A fuel tank 28 is mounted on an upper portion of the main frame 1, or an upper portion of the motorcycle frame structure FR and between the handlebar 10 and the rider's seat 22. A fairing 29 made of a synthetic resin is fixedly mounted on a front end of the motorcycle frame structure FR to cover a front to side region of the motorcycle

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frame structure FR, including a front area forwardly of the handlebar 10 and side areas generally laterally of the motorcycle engine E.

Except for the areas of the rear frame 21, where the rider's seat 22 and the fellow passenger's seat 23 are disposed, a part of opposite lateral areas of the rear frame 21 is covered by a front cover 24A while the remaining part of the lateral areas and a tail area of the rear frame 21 is covered by a rear cover 24B. The front cover 24A and the rear cover 24B form respective parts of a tail cover 24. A wheel fender flap 30 is connected with a rear lower portion of the rear wheel fender 27 so as to extend rearwardly downwardly therefrom to confront the rear wheel 14, thereby covering above and rearwardly of the rear wheel 14. In this condition, as shown in FIG. 2, the tail cover 24 is positioned in the vicinity of the rider's seat 22 and the fellow passenger's seat 23 (for example, below both the seats 22 and 23 in the illustrated instance).

Referring now to FIG. 3, showing an exploded view of FIG. 2, the rear frame 21 is made of a metallic material such as an aluminum alloy and is formed in a generally rectangular frame-like shape, when viewed from top. This rear frame 21 is formed at its front end with a plurality of, for example, four (although only three of them are shown) connecting pieces 31, through which the rear frame 21 is rigidly connected with the main frame 1 (shown in FIG. 1) by means of corresponding screw members (not shown) to extend rearwardly from the main frame 1.

The rider's seat 22 has an engagement pawl 32 protruding rearwardly therefrom and engageable in a hook 33 defined in the rear frame 21 and also has a pair of mounting pieces 34 rigidly secured to an undersurface of a front portion of the rider's seat 22 for alignment with respective fitting screw holes 37a defined in left and right side portion of a seat mounting area 37 of the rear frame 21. After the engagement pawl 32 is engaged in the hook 33 in the rear frame 21 and the mounting pieces 34 are aligned with the fitting screw holes 37a, fixing screws 38 are threaded into the fitting screw holes 37a through respective insertion holes defined in the mounting pieces 34, fixing the rider's seat 22 to the rear frame 21. In other words, the rider's seat 22 can be removed easily from the rear frame 21 merely by undoing the fixing screws 38. The rear cover 24B has a lower opening 41 that is closed by the rear wheel fender 27.

The rear cover 24B of the tail cover 24 is fixed to the rear frame 21 by means of threaded engagements in four fixing holes 39 defined in the rear cover 24B, covering a rear half of the rear frame 21. A top opening 40 of a contour conforming to the outer contour of the fellow passenger's seat 23 is defined in an upper portion of the rear cover 24B. Thus, it will readily be seen that an utility compartment is formed below the fellow passenger's seat 23, having been delimited by the rear fender 27 defining a bottom surface of the compartment, the rear cover 24B defining side surfaces of the compartment and the top opening 40 defining an access opening to the compartment.

At a location rearwardly of the rider's seat 22, the fellow passenger's seat 23 is mounted on the rear frame 21 so as to close the top opening 40 of the rear cover 24B rigidly secured to the rear frame 21. For this purpose, the fellow passenger's seat 23 is provided with an engagement pawl 45 rigidly connected to an undersurface of a rear portion of the seat 23 and, also, provided with a pair of left and right positioning studs 43 protruding downwardly from an undersurface of a front portion of the seat 23 and having an engagement projection 43a protruding downwardly from each of the positioning studs 43. The fellow passenger's seat 23 is positioned relative to the rear frame 21 when the engagement pawl 45 is latched in a

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hook 42 of the rear frame 21 and the engagement projections 43a are engaged in corresponding boss holes 44 defined in the rear frame 21.

The fellow passenger's seat 23 is also provided with a single to-be-locked piece 47 having a lock hole 47a engage- 5 able with a slidable lock piece 74 forming a part of a seat locking mechanism 49 as will be described in detail later, which to-be-locked piece 47 is positioned intermediate between the positioning studs 43 and 43. Accordingly, when the fellow passenger's seat 23 is mounted on the rear frame 21 10 with the engagement pawl 45 latched in the hook 42 and also with the engagement projections 43a engaged in the boss holes 44 as described above, the to-be-locked piece 47 extends through a slit-shaped insertion hole 48, defined in the rear frame 21, and is engaged with the slidable locking piece 15 74. In this way, the fellow passenger's seat 23 is unremovably locked to the rear frame 21.

A key device 51 for locking and unlocking the seat locking mechanism 49 by a key to enable the fellow passenger's seat 23 to be removed from the rear frame 21 is fixedly inserted in 20 a key mounting hole 53, defined in a front wall 55 of the rear cover 24B, through a support bracket 52. The key device 52 is operatively connected to the seat locking mechanism 49 through a cable 54. The details of the seat locking mechanism 49, the key device 51 and the cable 54 will now be described with particular reference to FIGS. 4 to 6.

As shown in FIG. 4, the cable 54 includes a cable sheath 57, having a longitudinal hollow accommodating therein a tubular liner 58, and a cable wire 59 extending through the liner 58. The cable sheath 57 has its opposite ends each provided 30 with a connecting member including a cap 60 and a clamp member 61 threadingly engaging the corresponding cap 60, with a circumferentially extending engagement groove 65 defined between the clamping member 61 and the cap 60. Opposite ends of the cable wire 59 protruding outwardly from the cable sheath 57 are provided rigidly with respective drum-shaped anchoring members 62.

The key device 51 is in the form of a rotary lock including, as shown in FIG. 5A in a front elevational view, a key body 64 having a key hole 63 on the front, and a key rotor 67 which is 40 retained rotatably within the key body 64 but can be turned in response to turn of a key (not shown) inserted into the key hole 63. As shown in FIG. 5B in a rear view, a cable coupling piece 68 is connected with a rear surface of the key rotor 67 for rotation together therewith. As shown in FIG. 5C, one of the cable anchoring members 62 is engaged with the cable coupling piece 68 to connect the corresponding end of the cable 54 with the key device 51.

Also, as shown in FIG. 5B, the key body 64 is formed with a mounting plate 69, having two screw holes 69a defined 50 therein, so as to protrude in a direction away from the cable coupling piece 68.

FIGS. 6A and 6B illustrate the seat lock mechanism 49 in plan and front elevational views, respectively. This seat lock mechanism 49 includes a mounting plate 71 adapted to be 55 fixedly connected to the rear frame 21, two connecting nuts 72 rigidly secured to the mounting plate 71, a retaining piece 73 extending laterally outwardly from the mounting plate 71 with one end rigidly connected to the mounting plate 71, and a locking piece 74 slidably retained in a slide guide groove 71a defined in the mounting plate 71. One of opposite ends, i.e., a right end, of the locking piece 74 protruding outwardly from the mounting plate 71 is rendered to be a locking portion 74a having an inclined guide surface. The other of the opposite ends of the locking piece 74 is bent at right angles to 60 define a retaining portion 74b having a cable wire mounting groove 74c opening upwardly. One of the cable anchoring

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members 62 of the cable 54 is coupled with the retaining portion 74b with the cable wire 59 passed through the cable wire mounting groove 74c.

On the other hand, the other end of the retaining piece 73 remote from the mounting plate 71 is bent at right angles to 5 extend substantially parallel to the retaining portion 74b of the locking piece 74, defining a retaining portion 73a. The retaining portion 73a has a cable sheath mounting groove 73b opening upwardly. One of the cable caps 60 of the cable 54 is coupled with the retaining piece 73 with the groove 65 of the cable 54 engaged in the corresponding cable sheath mounting groove 73b. 10

Referring to FIG. 6B, when the cable wire 59 is pulled by turn of a key inserted into the key device 51, the locking piece 15 74 is moved from a seat locked position shown by a solid line, in which the locking portion 74a of the locking piece 74 is engaged in the lock hole 47a in the to-be-locked piece 47, towards a seat unlocked position shown by the phantom line, in which the locking portion 74a is disengaged out of the lock hole 47a. In this unlocked position, the fellow passenger's seat 23 (FIG. 3) is unlocked. With the fellow passenger's seat 23 unlocked, the fellow passenger's seat 23 can be removed from the motorcycle rear frame 21. 20

Referring to FIG. 7, the support bracket 52 for supporting the key device 51 is made of a metallic material and is formed 25 integrally with a body plate 77 having a key mounting hole 77a, a lightening hole 77b and a pair of mounting holes 77c all formed therein, a support piece 78 formed by bending one side portion of the body plate 77 at predetermined angles relative to the remaining portion of the body plate 77 and used to support the cable 54, two mounting pieces 79 and 80 formed by bending upper and lower end portions of the body plate 77 at right angles relative to the remaining portion of the body plate 77, and a guard piece 81 protruding laterally from the lower mounting piece 80 in a direction conforming to the support piece 78. The guard piece 81 forms a guard body of the present invention. 30

The support piece 78 is formed with a mounting groove 78a for engagement with the corresponding groove 65 of the cable 54 shown in FIG. 4. The guard piece 81 is made up of a retaining piece 81a, protruding from the lower mounting piece 80, and a guard portion 81b extending substantially 35 vertically from the retaining piece 81a. The upper and lower mounting pieces 79 and 80 are formed with one mounting hole 79a and two mounting holes 80a, respectively.

Hereinafter, the manner of mounting the support bracket 52 (FIG. 7), the key device 51 (FIGS. 5A to 5C) and the seat locking mechanism 49 (FIGS. 6A and 6B) will be described in detail. In the first place, one end of the cable 54 is connected 40 to the support bracket 52 and the key device 51. More specifically, one end of the cable wire 59 of the cable 54 is connected to the cable coupling piece 68 of the key device 51 in the manner described with reference to FIGS. 5A to 5C. One end of the cable sheath 57 of the cable 54 is passed through and fixed in the mounting groove 78a of the support piece 78 in the support bracket 52 shown in FIG. 7. 45

After, as shown by the arrow in FIG. 3, the key body 64 of the key device 51 is passed through the key mounting hole 77a in the support bracket 52, fixing screws 93 are then passed 50 respectively through the two mounting holes 77c (FIG. 7) in the support bracket 52 and are then threaded into the associated screw holes 69a in the key device 51 to connect the key device 51 to the support bracket 52.

Thereafter, the key body 64 protruding forwardly from the key mounting hole 77a in the support bracket 52 is passed 65 through the key mounting hole 53 in the rear cover 24B from inside of the rear cover 24B and, while the body plate 77 of the

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support bracket **52** is held in abutment with an inner surface of the front wall **55** of the rear cover **24B**, fixing screws **82** are, after the mounting holes **79a** and **80a** in the mounting pieces **79** and **80** of the support bracket **52** shown in FIG. 7 have been aligned with respective fixing nut portions **91** and **92** protruding outwardly from the front wall **55** of the rear cover **24B**, threaded into the fixing nuts **91** and **92** through the mounting holes **79a** and **80a**. By so doing, the support bracket **52** is fixed to the inner surface of the front wall **55** of the rear cover **24B**. A fixing ring **83** (FIG. 3) is mounted on a free end of the key body **64**, which protrudes outwardly from the key mounting hole **53** in the rear cover **24B**, to improve the outer appearance.

Prior to the mounting of the seat locking mechanism **49**, the retaining piece **73** of the seat locking mechanism **49** is connected to the opposite end of the cable sheath **57** through the corresponding cable cap **60** while the locking piece **74** is connected to the opposite end of the cable wire **59** in the manner described with particular reference to FIGS. 6A and 6B. On the other hand, as shown in FIG. 3, a bridge portion **84** provided in the rear half of the rear frame **21** is formed, in addition to the boss holes **44** and the slit-shaped insertion hole **48**, with a pair of insertion holes **87**. After the opposite end of the cable **54** has been connected to the seat locking mechanism **49**, the seat locking mechanism **49** is fixed to the bridge portion **84** of the rear frame **21** by holding the mounting plate **71** of the seat locking mechanism **49** in abutment with an undersurface of the bridge portion **84**, aligning the connecting nuts **72** with the respective insertion holes **87** of the bridge portion **84** and screwing fixing screws **88** into the connecting nuts **72** through the insertion holes **87**.

When the fellow passenger's seat **23** is mounted onto the rear frame **21**, the free end of the to-be-locked piece **47** of the seat **23**, then moving downwardly in a direction towards the rear frame **21**, slides along the inclined guide surface of the locking portion **74a** of the locking piece **74** while urging the locking piece **74** to move a stroke S backwardly to a position shown by the phantom line in FIG. 6A. Once the locking piece **74** is so moved backwardly, the locking piece **74** is, by the action of a pushing force exerted by the cable wire **59** of the cable **54**, driven in a direction counter to the direction of backward movement until the locking portion **74a** of the locking piece **74** is inserted into and then engaged in the locking hole **47a** in the to-be-locked piece **47** to establish the seat locked position, in which the fellow passenger's seat **23** is locked to the rear frame **21**.

On the other hand, when the fellow passenger's seat **23** is desired to be released, a key has to be inserted into the key hole **63** of the key device **51** and then turned. When the key is turned, the key rotor **67** of the key device **51** is turned from a seat lock position K1, shown in FIG. 5B, to a lock release position K2, accompanied by a corresponding turn of the cable coupling piece **68** about the longitudinal axis of the key rotor **67**. Once the cable coupling piece **68** is so turned, the cable wire **59** of the cable **54** is pulled, accompanied by movement of the slidable lock piece **74** of the seat locking mechanism **49** to a lock release position shown by the phantom line in FIG. 6B to thereby allow the fellow passenger's seat **23** to be unlocked.

As shown in FIGS. 8 and 9, the rear fender **27** positioned beneath the rear cover **24B** is formed integrally with a first guard plate **89**, employed as an additional guard body and positioned rearwardly of the guard piece **81** of the support bracket **52** forming a part of the key device **51**, and a second guard plate **90** employed as an additional guard body and positioned rearwardly of the first guard plate **89** and forwardly of the cable **54**. Each of the guard plates **89** and **90** is

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in the form of an upright wall rising from the rear fender **27**. The first guard plate **89** blocks a tool that is inserted through a gap **85** delimited between the body plate **77** and the guard portion **81b** of the support bracket **52** shown in FIG. 7, to thereby prevent the tool from being further advanced. On the other hand, the second guard plate **90** blocks a tool that is inserted towards the guard piece **81** from front and then advanced beneath or laterally of the guard piece **81** towards the inside of the rear cover **24B**, to thereby prevent the tool from being further advanced.

It is, however, to be noted that in the practice of the present invention, one or both of the first and second guard plates **89** and **90** may be dispensed with.

When the rider's seat **22** shown in FIG. 2 is removed, a portion of the rear cover **24B**, where the rider's seat **22** is mounted, is opened as shown in FIG. 8, with an opening **96** exposed to the outside. In this condition, a large gap exists between a lower portion of the rear cover **24B** and the rear fender **27**. Even if an attempt is made to unlock the fellow passenger's seat **23** by inserting an elongated flexible tool such as a wire into a space in the lower portion of the rear cover **24B** through the opening **96** until the tip of the tool hitches the cable **54** and then by pulling the inserted tool together with the cable **54**, the tool can be brought into contact with the upright guard portion **81b** of the guard piece **81** in the support bracket **52**, thereby preventing the elongated tool from reaching the cable **54**.

According to the foregoing embodiment, an access from the outside of the vehicle body to the cable **54** can be effectively barred since the guard piece **81** serves to block an easy-to-access area adjacent the support bracket **52**, where the cable **54** is arranged to be coupled with the key device **51**. Also, since the guard piece **81** is formed integrally with the support bracket **52**, no variation occur in the mounting position of the guard piece **81**, compared with the case in which the support bracket **52** and the guard piece **81** are arranged separately, and, accordingly, not only can the access to the cable **54** be effectively avoided, but also the number of component parts used can be reduced. Also, even though the tool is inserted from anywhere and any direction, the access of the tool to the cable **54** can be effectively prevented by the presence of the first and second guard plates **89** and **90** provided in the rear fender **27**.

Considering that the key device **51** is fixedly fitted to the front wall of the rear cover **24B** of the tail cover **24** and substantially intermediate of the width of the vehicle body, the cable **54** extending between the key device **51** and the seat locking mechanism **49**, both shown in FIG. 9, can have a reduced length and, consequently, even if the number of the guard plates **89** and **90** that are provided in the rear fender **27** can be reduced, the access of the tool to the cable **54** can be barred with a simplified construction. In the illustrated instance, the cable **54** is accommodated within an interior space defined by the rear fender **27**, the rear cover **24B** of the tail cover **24** and the fellow passenger's seat **23**.

It is to be noted that one of the guard piece **81** and the guard plates **89** and **90** may be dispensed with and, where the guard piece **81** is not employed, the first guard plate **89** is preferably arranged in the vicinity of the opening **96**.

FIGS. 10 to 12 illustrate a second preferred embodiment of the present invention. In particular, FIG. 10 illustrates a fragmentary side view showing a rear portion of the vehicle body equipped with the guard structure for the seat lock. The motorcycle shown therein makes use of a unitary seat structure **94**, in which the rider's seat and the fellow passenger's seat are formed integrally with each other.



The unitary seat structure **94** is generally elongated in a longitudinal direction of the vehicle body and, therefore, the use is made of a double lock device including, as shown in Fig. **11**, a front seat locking mechanism **97** and a rear seat locking mechanism **98** to lock the unitary seat structure **94**. The front seat locking mechanism **97** is of a twin type, in which projections of a slider **95** slidable in a direction transverse of the front seat locking mechanism **97** can be engaged in respective recesses defined in corresponding two lock pins **103** fixed in downward orientation to the unitary seat structure **94** (FIG. **10**).

On the other hand, the rear seat locking mechanism **98** is of a type substantially identical with the seat locking mechanism **49** shown in FIG. **3** and employed in the practice of the first embodiment of the present invention and is used to lock the unitary seat structure **94** when a slider **106** movable in the longitudinal direction of the vehicle body is engaged in a lock hole **105** defined in a to-be-locked piece **104** fixed in downward orientation to the seat structure **94**.

The front and rear seat locking mechanism **97** and **98** are operated through respective cables **100** and **101** by inserting a key into the sole key device **99**. For this purpose, the key device **99** is arranged at a location generally intermediate between the front and rear locking mechanisms **97** and **98** and rigidly secured to the rear fender **108**. More specifically, the key device **99** is fixed to the rear fender **108** by aligning two fixing holes **109** of the key device **99** with respective boss holes (not shown) defined in bosses **110** of the rear fender **108** and then by screwing corresponding tapping screws (not shown) into those boss holes. A key hole (not shown) of the sole key device **99** is so oriented downwardly that the presence of the key hole cannot be recognized by any person other than the rider of the motorcycle. Therefore, a key **130** can be inserted into the key hole from below in a direction, shown by the arrow-headed broken line.

The rear frame **107** includes an upper frame member **107a** and a lower frame member **107b** positioned one above the other. The rear fender **108** is fixed to the rear frame **107** by means of screws. A tail cover **102** is fixed to the upper frame member **107a** of the rear frame **107** by means of bolts threaded into respective rubber nuts (not shown) which are plugged in four boss holes **111a** in four corresponding bosses **111** provided in the rear frame **107**. This tail cover **102** is of a shape turned backwards at a lower portion thereof so that the key device **99**, the cables **100** and **101** and the neighborhood of the key device **99** can be concealed, and an opening **112** is defined at front end thereof. For this reason, a tool such as a wire can be inserted from outside of the vehicle body through the opening **112**.

In view of the above, in order to avoid an insertion of the tool, a bracket **113** supporting the two cables **100** and **101** is arranged forwardly of and close to the key device **99**, and a lamp relay **114** for actuating direction indicating blinkers one at a time is fixedly mounted on this bracket **113**. Accordingly, the lamp relay **114**, which is one of vehicle mounted component parts, is utilized to serve as a guard body for blocking an access to the cables **100** and **101** from outside.

As shown in FIG. **12**, the bracket **113** is prepared from a sheet metal by the use of any known press work and is formed integrally with a fixing piece **117** to be secured to the rear frame **107**, a support piece **118** for supporting the cables **100** and **101** and a mounting piece **119** on which the lamp relay **114** is mounted. The support piece **118** has a pair of support grooves **118a** and **118b** of a substantially U-shaped configuration opening rearwardly, in which grooves **118a** and **118b** the cables **100** and **101** are engaged, respectively. The fixing piece **117** has an upper end that is bent to extend inwardly to

define a detent pawl **117a**. The mounting piece **119** includes a pair of engagement pawls **119a** protruding from opposite sides of an upper end of the mounting piece **119** and a bent portion **120** at a lower end thereof. The mounting piece **119** protrudes slightly laterally of the upper frame member **107a** through the bent portion **120**.

On the other hand, the lamp relay **114** includes a relay body inserted into a protective casing **121** made of a rubber material, which casing **121** is formed at its inner side with a slit **122** for insertion of the mounting piece **119** of the bracket **113**. Accordingly, the protective casing **121** is supported by the mounting piece **119** while seated on the bent portion **120**, when the mounting piece **119** is inserted into the slit **122** with the engagement pawls **119a** engaged non-detachably with an upper edge portion of the slit **122**. The bracket **113** is secured to the upper frame member **107a** when, after the detent pawl **117a** of the fixing piece **117** has been brought into abutment with an upper surface of the upper frame member **107a** to prevent the bracket **113** from rotating and a fixing hole **123** defined in the fixing piece **117** has been aligned with a mounting hole (not shown) defined in the upper frame member **107a** of the rear frame **107**, a set screw (not shown) is threaded into a pop-nut (also not shown) inserted in the mounting hole of the upper frame member **107a**.

In this guard structure described above, when an attempt is made to insert the tool such as a wire is inserted through the opening **112** in the tail cover **102** towards the cables **100** and **101** as shown by the arrow-headed solid line P in FIG. **11**, the tool is blocked by the lamp relay **114** and, hence, cannot reach the cables **100** and **101**. Also, even when the cables **100** and **101** are pulled forwards (outwardly) by the tool in a direction shown by the arrow Q in FIG. **12**, further forward pull of the cables **100** and **101** can be blocked by the support piece **118**. Moreover, with this guard structure, merely by changing the position of the lamp relay **114**, intrusion of the tool can be prevented by the lamp relay **114** to avoid an unnecessary unlocking with an inexpensive simplified structure.

It is to be noted that in place of the lamp relay **114** used as the guard body, a guard piece similar to the guard piece **81** shown in FIG. **7** and described in connection with the first embodiment may be formed integrally with or rigidly connected with the bracket **113**.

It is also to be noted that the support bracket **52** shown in FIG. **7** and described in connection with the first embodiment and the bracket **113** shown in FIG. **12** and described in connection with the second embodiment may not be made of a metallic material as described, but may be made of a synthetic resin.

Although the present invention has been fully described in connection with the preferred embodiments thereof with reference to the accompanying drawings which are used only for the purpose of illustration, those skilled in the art will readily conceive numerous changes and modifications within the framework of obviousness upon the reading of the specification herein presented of the present invention. By way of example, the guard structure for the seat lock according to the present invention, although having been shown and described as applied to the motorcycle, can be equally applied to, for example, a three-wheeled motor vehicle or a four-wheeled off-road motor vehicle.

Accordingly, such changes and modifications are, unless they depart from the scope of the present invention as delivered from the claims annexed hereto, to be construed as included therein.

What is claimed is:

1. A guard structure for a seat lock on a vehicle having a frame structure supporting an exterior vehicle body with a

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seat member movably mounted on the exterior vehicle body and closing access to a compartment within the vehicle body, comprising:

- a seat locking mechanism for locking and unlocking the seat member to the exterior of the vehicle body;
- a cable operatively connected to the seat locking mechanism for moving the seat locking mechanism between an unlocked to a locked state;
- a key device mounted to be accessible through the exterior vehicle body apart from the seat locking mechanism and operatively connected to move the cable;
- a key member for activating the key device to move the cable; and

means for mounting the key device within the vehicle body including a guard body means, positioned to block intrusion of a foreign object between an interface of the exterior vehicle body and an opening of the compartment closed by the seat member, for protecting the cable from being contacted by the foreign object, and wherein the guard body is a lamp relay for activating directional blinkers.

2. A guard structure for a seat lock on a vehicle having a frame structure supporting an exterior vehicle body with a seat member movably mounted on the exterior vehicle body and closing access to a compartment within the vehicle body, comprising:

- a seat locking mechanism for locking and unlocking the seat member to the exterior of the vehicle body;
- a cable operatively connected to the seat locking mechanism for moving the seat locking mechanism between an unlocked to a locked state;
- a key device mounted to be accessible through the exterior vehicle body apart from the seat locking mechanism and operatively connected to move the cable;
- a key member for activating the key device to move the cable;
- a guard body means, positioned to block intrusion of a foreign object between an interface of the exterior vehicle body and an opening of the compartment closed by the seat member, for protecting the cable from being contacted by the foreign object; and

means for mounting the key device within the vehicle body, wherein the guard body means is provided in the means for mounting the key device.

3. The guard structure of claim 2 wherein the guard body means for protecting the cable further provides a separate operative function for the operation of the vehicle.

4. The guard structure of claim 3 wherein the guard body is a lamp relay for activating directional blinkers.

5. A guard structure for a seat lock of a vehicle, which comprises:

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a seat locking mechanism for a vehicle seat, the seat locking mechanism being fitted to a rear frame of a vehicle frame structure;

- a key device adapted to be actuated by a key;
- a support bracket, through which the key device is mounted on the vehicle;
- a cable operatively connecting between the seat lock mechanism and the key device; and
- a guard body for blocking an access from outside of a vehicle body to the cable, wherein the key device is fitted to a tail cover, positioned proximate to the vehicle seat and covering the rear frame, and wherein the guard body is provided in the support bracket and is a separated part from the tail cover and blocks an access through a gap around the tail cover to the cable.

6. The guard structure for the seat lock as claimed in claim 5, wherein the guard body is provided in a rear fender positioned above a rear wheel of the vehicle.

7. The guard structure for the seat lock as claimed in claim 5, wherein the guard body is supported by the rear frame of the vehicle.

8. The guard structure for the seat lock as claimed in claim 7, wherein the guard body is one of vehicle mounted component parts and is supported by the rear frame through the support bracket.

9. The guard structure for the seat lock as claimed in claim 5 wherein the guard body provides a separate operative function in an operation of the vehicle.

10. The guard structure for the seat lock as claimed in claim 9 wherein the guard body is a lamp relay for activating directional blinkers.

11. A guard structure for a seat lock of a vehicle, which comprises:

- a seat locking mechanism for a vehicle seat, the seat locking mechanism being fitted to a rear frame of a vehicle frame structure;
- a key device adapted to be actuated by a key;
- a cable operatively connecting between the seat lock mechanism and the key device; and
- a guard body for blocking an access from outside of a vehicle body to the cable, wherein the key device is fitted to a tail cover, positioned proximate to the vehicle seat and covering the rear frame, and wherein the guard body is a lamp relay for activating directional blinkers and blocks an access through a gap around the tail cover to the cable.

12. The guard structure for the seat lock as claimed in claim 11, further comprising a support bracket, through which the key device is mounted on the vehicle, and wherein the lamp relay is provided in the support bracket.

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